CLAIMS

We claim:

1. An isolated peptide of about 7 to 100 amino acid residues comprising a viral fusion protein binding domain of the RhoA protein.

2. The peptide of claim 1, wherein said viral fusion protein binding domain comprises residues 67-109 of the RhoA protein.

3. The peptide of claim 1, wherein said viral fusion protein binding domain comprises residues 77 to 95 of the Rho protein.

4. The peptide of claim 3, further comprising the amino acid sequence Thr-Asp-Val-Ile-Leu-Met-Cys-Phe-Ser-Ile-Asp-Ser-Pro-Asp-Ser-Leu-Glu-Asn-Ile (SEQ. I.D. NO. 1).

5. The peptide of claim 1, wherein said viral fusion protein binding domain comprises residues 80-89 of the RhoA protein.

6. The peptide of claim 5, further comprising the amino acid sequence Ile-Leu-Met-Cys-Phe-Ser-Ile-Asp-Ser-Pro (SEQ. I.D. NO. 2).

7. An isolated peptide of about 7 to 100 amino acid residues comprising a RhoA binding domain of the F glycoprotein of respiratory syncytial virus.

8. The isolated peptide of claim 7, further comprising amino acid residues 9 to 18 of the F1 subunit of the F glycoprotein of respiratory syncytial virus.

9. An isolated peptide of about 7 to 100 amino acid residues comprising a RhoA binding domain of the glycoprotein gp41 of the human immunodeficiency virus.

10. The isolated peptide of claim 9, further comprising residues 29-50 of HIV gp41.

11. An isolated nucleic acid comprising a nucleotide sequence encoding the viral fusion protein binding domain of RhoA .

12. An isolated nucleic acid as in claim 11, further comprising a promoter operative in eukaryotic cells.

13. An isolated nucleic acid as in claim 11, further comprising a promoter operative in prokaryotic cells.

14. An isolated nucleic acid as in claim 11, further comprising a poly-A nucleotide sequence 3' to said nucleotide sequence of the viral fusion protein binding domain.

15. An isolated nucleic acid as in claim 11, further comprising a selectable marker for identification of cells transfected or transformed with said isolated nucleic acid.

16. An isolated nucleic acid as in claim 11, further comprising the nucleotide sequence of a protein purification tag either 5' or 3' to said nucleotide sequence of the viral fusion protein binding domain.

17. An isolated nucleic acid as in claim 11, further comprising the nucleotide sequence of an enzymatic cleavage site located either 5' or 3' to said nucleotide sequence of the viral fusion protein binding domain.

18. A method for inhibiting viral infection which comprises administering to a human subject in need thereof a therapeutically effective amount of an inhibitory molecule representing the viral fusion protein binding domain of the RhoA protein.

19. The method of claim 18 wherein said inhibitory molecule comprises a peptide.

20. The method of claim 18 wherein said inhibitory molecule comprises a peptide mimic.

21. The method of claim 19 wherein said peptide comprises amino acid residues 67-109 of the RhoA protein.

22. The method of claim 19 wherein said peptide comprises amino acid residues 77-95 of the RhoA protein.

23. The method of claim 21 wherein said peptide further comprises the amino acid sequence Thr-Asp-Val-Ile-Leu-Met-Cys-Phe-Ser-Ile-Asp-Ser-Pro-Asp-Ser-Leu-Glu-Asn-Ile (SEQ. I.D. NO. 1).

24. The method of claim 19 wherein said peptide comprises amino acid residues 80-89 of the RhoA protein.

25. The method of claim 23 wherein said peptide further comprises the amino acid sequence Ile-Leu-Met-Cys-Phe-Ser-Ile-Asp-Ser-Pro (SEQ. I.D. NO. 2).

26. The method of claim 18, wherein said administration comprises oral administration.

27. The method of claim 18, wherein said administration comprises nasal administration.

28. The method of claim 18, wherein said administration comprises parenteral administration.

29. The method of claim 18, wherein said administration comprises intravenous administration.

30. The method of claim 18, wherein said administration comprises topical administration.

31. The method of claim 30, wherein said topical administration comprises administration on the surface of the skin or a mucous membrane of a therapeutically effective concentration of inhibitory molecule in a pharmaceutically acceptable carrier.

32. The method of claim 31, wherein said said pharmaceutically acceptable carrier comprises a spermicidal or other jelly for use during sexual intercourse.

33. The method of claim 31, wherein said pharmaceutically acceptable carrier comprises a cream or gel for application to scratches, cuts, or needle pricks to the skin.

34. A method for invoking an antibody response in a warm-blooded animal, said method comprising administering to the animal an immunogenic dose of an isolated peptide of about 7 to 100 amino acid residues comprising a viral fusion protein binding domain of the RhoA protein.

35. The method of claim 34, wherein said isolated peptide comprises residues 67-109 of the RhoA protein.

36. The method of claim 34, wherein said isolated peptide comprises residues 77 to 95 of the RhoA protein.

37. The method of claim 34, wherein said isolated peptide comprises residues 80-89 of the RhoA protein.

38. The method of claim 34, wherein said antibody response further comprises polyclonal antibodies.

39. The method of claim 34, wherein said antibody response further comprises a monoclonal antibody.

40. The method of claim 34, wherein said antibody response further comprises a chimeric antibody.

41. The method of claim 34, wherein said antibody response further comprises an antigen binding fragment of said antibody.

42. An antibody for inhibiting viral infection in a susceptible cell, said antibody comprising an immunoglobulin or fragment thereof with binding specificity for the RhoA binding domain of a viral fusion protein.

43. An antibody for inhibiting viral infection in a susceptible cell, said antibody comprising an immunoglobulin or fragment thereof with binding specificity for the viral fusion protein binding domain of the RhoA protein.

44. A method of using isolated peptides representing a viral fusion protein binding domain of the RhoA protein for identifying other compounds which inhibit viral infection, said method comprising combining

a) a RhoA binding component of a viral fusion protein,

b) an isolated peptide representing a viral fusion protein binding domain of the RhoA protein, and

c) a target compound

wherein reduced binding of said RhoA binding component with said viral fusion protein binding domain in the presence of said target compound, as compared to the binding observed in the absence of said target compound, indicates that said target compound is an inhibitor of viral infection.

45. The method of claim 44, wherein said isolated peptide further comprises an isolated peptide labeled by fluorescent or radioactive means.

46. The method of claim 44, wherein said RhoA binding component of a viral fusion protein further comprises a RhoA binding component of a viral fusion protein attached to a solid surface.

47. The method of claim 44, wherein said attachment further comprises attachment to a plate used for enzyme-linked immunosorbence assays.

48. The method of claim 44, wherein said attachment further comprises attachment to a bead.

49. The method of claim 44, wherein said RhoA binding component of a viral fusion protein further comprises the F glycoprotein of respiratory syncytial virus.

50. The method of claim 44, wherein said RhoA binding component of a viral fusion protein further comprises an isolated peptide of the RhoA binding domain of the F glycoprotein of respiratory syncytial virus.

51. The method of claim 44, wherein said RhoA binding component of a viral fusion protein further comprises the gp41 glycoprotein of human immunodeficiency virus.

52. The method of claim 44, wherein said RhoA binding component of a viral fusion protein further comprises an isolated peptide of the RhoA binding domain of the gp41 glycoprotein of human immunodeficiency virus.

53. The method of claim 44, wherein said isolated peptide comprises about 7 to 100 amino acid residues representing a viral fusion protein binding domain of the RhoA protein.

54. The method of claim 53, wherein said isolated peptide further comprises residues 67-109 of the RhoA protein.

55. The method of claim 53, wherein said isolated peptide further comprises residues 77 to 95 of the Rho protein.

56. The method of claim 53, wherein said isolated peptide further comprises the amino acid sequence Thr-Asp-Val-Ile-Leu-Met-Cys-Phe-Ser-Ile-Asp-Ser-Pro-Asp-Ser-Leu-Glu-Asn-Ile (SEQ. I.D. NO. 1).

57. The method of claim 53, wherein said isolated peptide further comprises residues 80-89 of the RhoA protein.

58. The method of claim 53, wherein said isolated peptide further comprises the amino acid sequence Ile-Leu-Met-Cys-Phe-Ser-Ile-Asp-Ser-Pro (SEQ. I.D. NO. 2).

59. The method of claim 53, wherein said target compound further comprises a product of a combinatorial library.

60. The method of claim 53, wherein said target compound further comprises a product of a library of peptidomimetic compounds.

61. A method of using isolated peptides representing a RhoA binding domain of a viral fusion protein for identifying other compounds which inhibit viral infection, said method comprising combining

a) a viral fusion protein binding component of the RhoA protein,

b) an isolated peptide representing the RhoA binding domain of a viral fusion protein, and

c) a target compound

wherein reduced binding of said viral fusion protein binding component with said RhoA binding domain in the presence of said target compound, as compared to the binding observed in the absence of said target compound, indicates that said target compound is an inhibitor of viral infection.

62. The method of claim 61, wherein said viral fusion protein binding component of the RhoA protein further comprises the RhoA protein.

63. The method of claim 61, wherein said viral fusion protein binding component of the RhoA protein further comprises an isolated peptide of about 7 to 100 amino acid residues representing a viral fusion protein binding domain of the RhoA protein.

64. The method of claim 61, wherein said viral fusion protein binding component of the RhoA protein further comprises a viral fusion protein binding component of the RhoA protein attached to a solid surface.

65. The method of claim 64, wherein said attachment further comprises attachment to a plate used for enzyme-linked immunosorbence assays.

66. The method of claim 64, wherein said attachment further comprises attachment to a bead.

67. The method of claim 61, wherein said isolated peptide further comprises about 7 to 100 amino acid residues representing a RhoA binding domain of the F glycoprotein of respiratory syncytial virus.

68. The method of claim 61, wherein said isolated peptide further comprises amino acid residues 9 to 18 of the F1 subunit of the F glycoprotein of respiratory syncytial virus.

69. The method of claim 61, wherein said isolated peptide further comprises about 7 to 100 amino acid residues representing a RhoA binding domain of the glycoprotein gp41 of the human immunodeficiency virus.

70. The method of claim 61, wherein said isolated peptide further comprises residues 29-50 of HIV gp41.

71. The method of claim 61, wherein said isolated peptide further comprises an isolated peptide labeled by fluorescent or radioactive means.

72. The method of claim 61, wherein said target compound further comprises a product of a combinatorial library.

73. The method of claim 61, wherein said target compound further comprises a product of a library of peptidomimetic compounds.

74. The method of claim 61, wherein said target compound further comprises a naturally-occurring compound.